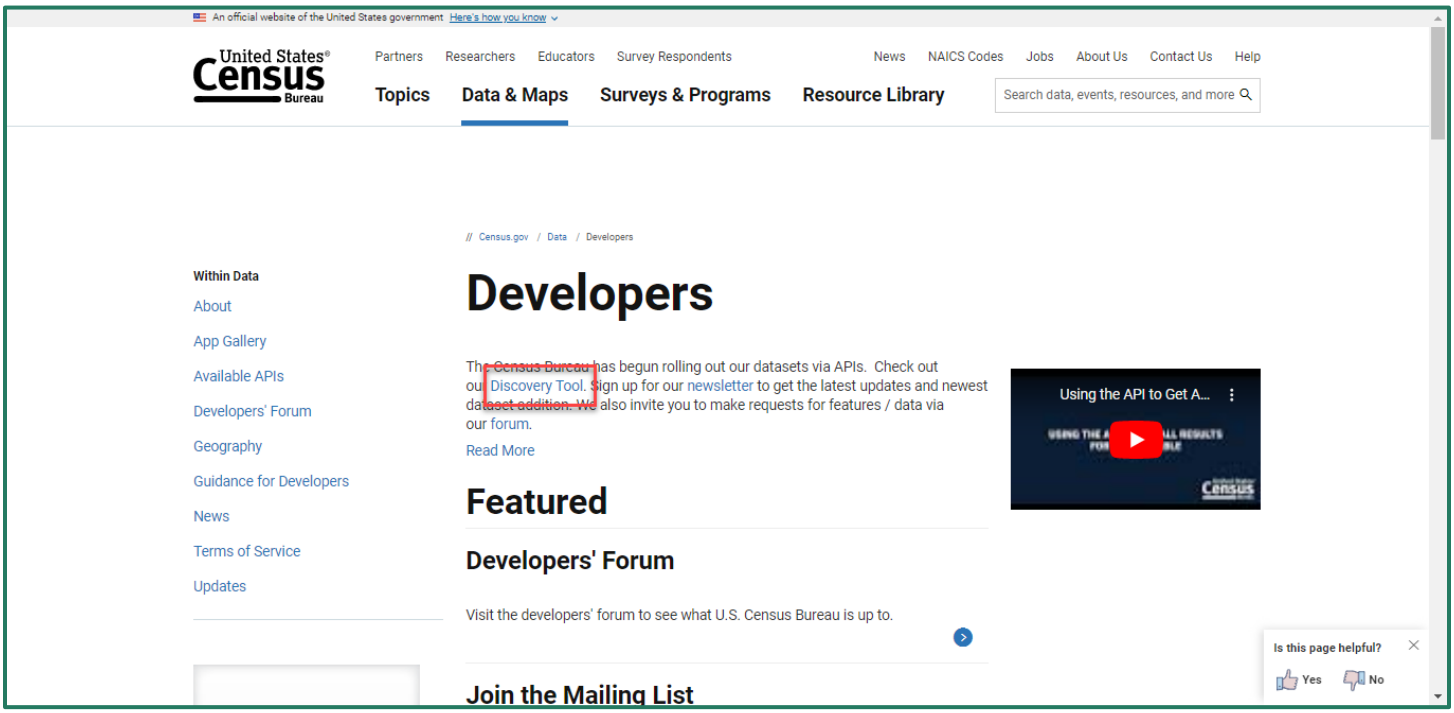
How to Access Housing Data from the 2010 Decennial Census Using the Census Data API

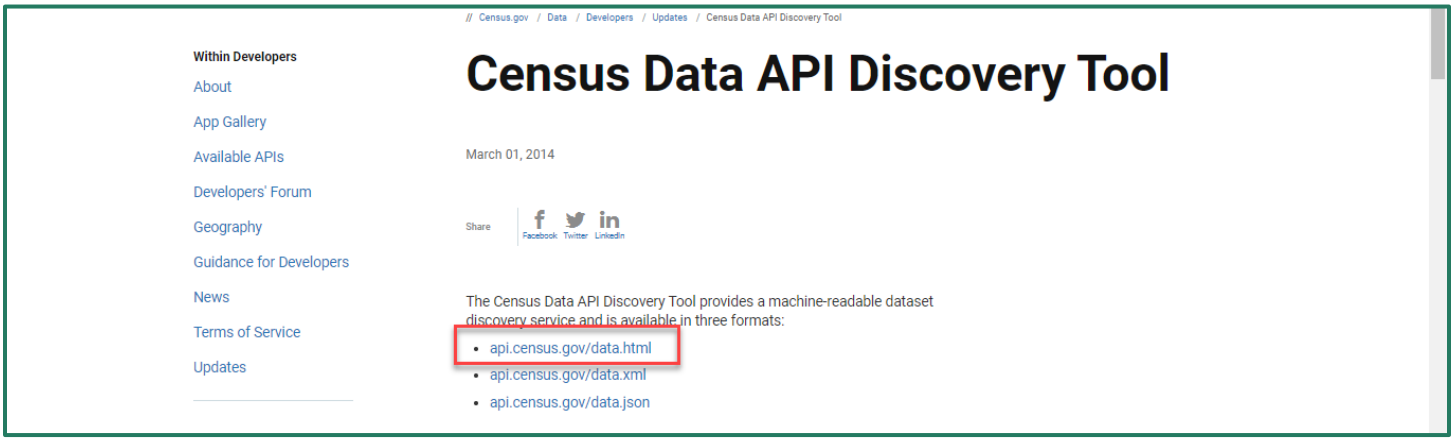
Step by step instructions for accessing the data in the Census Data API

The goal with this example is to use the Census Data API to find table H1, Housing Units, from the 2010 Decennial Census Summary File 1, for the Clarksburg, West Virginia Micropolitan Statistical Area and the three counties in West Virginia that comprise the micro area--Doddridge, Harrison, and Taylor Counties.

Step 1. Using your web browser, go to the census.gov Developers page at https://www.census.gov/data/developers.html. Under the Developers heading, click on the link to the Discovery Tool.



Step 2. Then click on the format that you'd like to view the Discovery Tool in. For this example, click on the html version.



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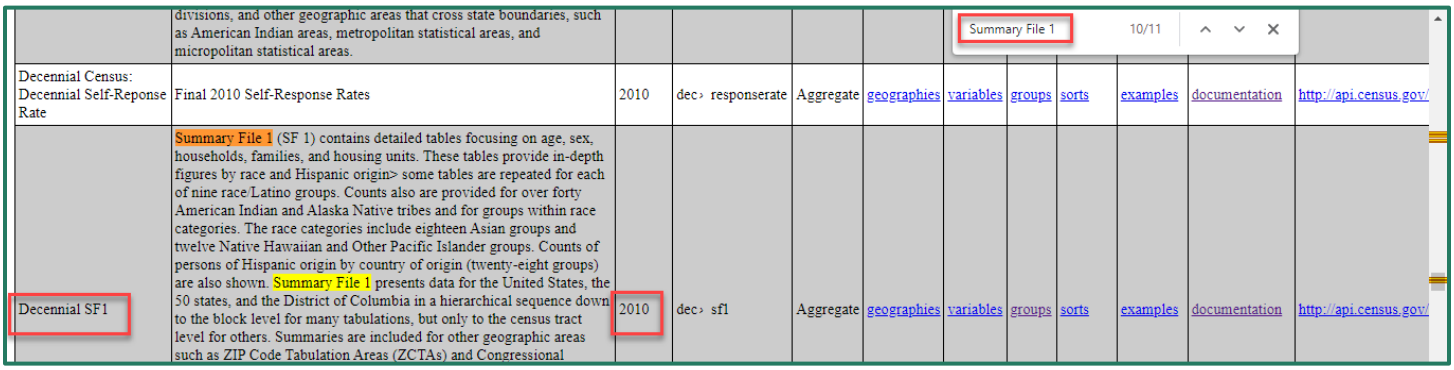
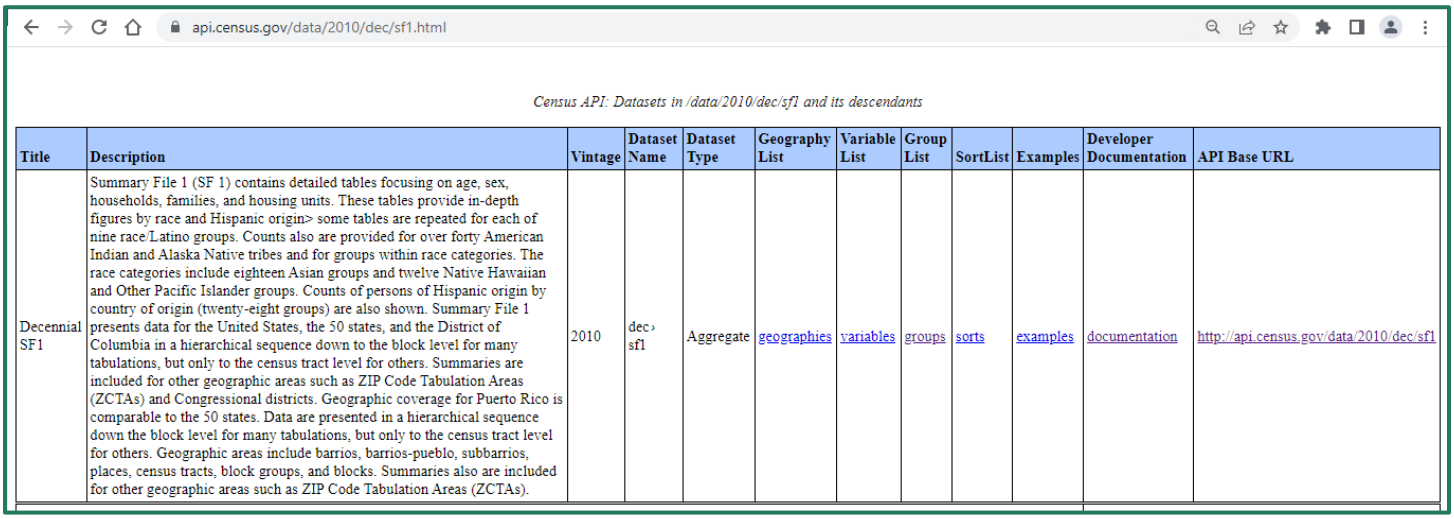
Step 3. The Discovery Tool houses all the different datasets found in the Census Data API. To locate the 2010 Decennial Census Summary File 1, click on Ctrl + F and type "Summary File 1" into the search bar that appears. Skip over any datasets from 2000 and 2010 that match, until you reach the one labeled "Decennial SF1" for 2010.



	divisions, and other geographic areas that cross state boundaries, such as American Indian areas, metropolitan statistical areas, and micropolitan statistical areas.										
Decennial Census: Decennial Self-Reponse Rate	Final 2010 Self-Response Rates	2010	dec› responserate	Aggregate	geographies	variables	groups	sorts	examples	documentation	http://api.census.gov/
Decennial SF1	Summary File 1 (SF 1) contains detailed tables focusing on age, sex, households, families, and housing units. These tables provide in-depth figures by race and Hispanic origin> some tables are repeated for each of nine race/Latino groups. Counts also are provided for over forty American Indian and Alaska Native tribes and for groups within race categories. The race categories include eighteen Asian groups and twelve Native Hawaiian and Other Pacific Islander groups. Counts of persons of Hispanic origin by country of origin (twenty-eight groups) are also shown. Summary File 1 presents data for the United States, the 50 states, and the District of Columbia in a hierarchical sequence down to the block level for many tabulations, but only to the census tract level for others. Summaries are included for other geographic areas such as ZIP Code Tabulation Areas (ZCTAs) and Congressional	2010	dec› sf1	Aggregate	geographies	variables	groups	sorts	examples	documentation	http://api.census.gov/

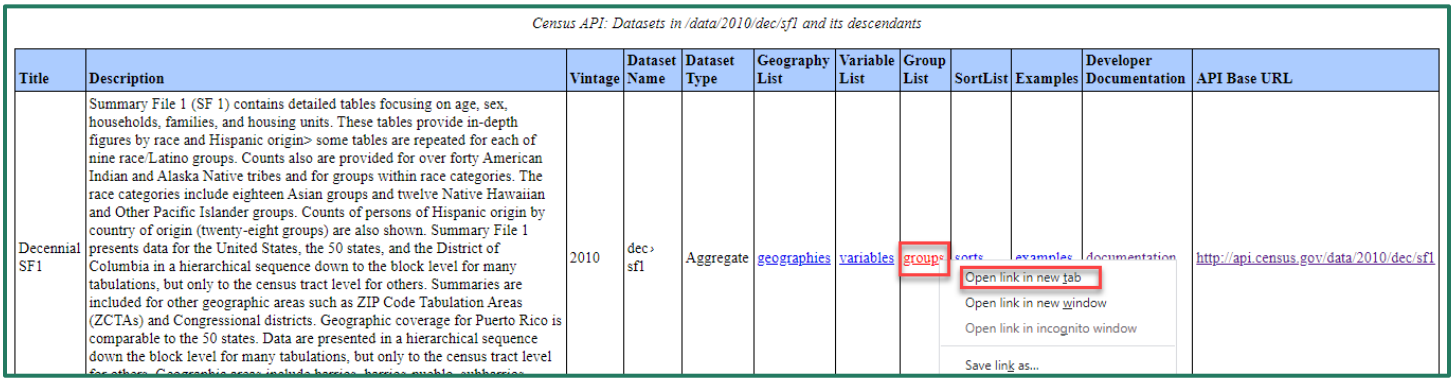
To isolate the information for this dataset so you don't have to worry about the other 1,500+ datasets found on this page, click on the API Base URL found in the last column and add '.html' to the end of it. The resulting URL should be https://api.census.gov/data/2010/dec/sf1.html.



Census API: Datasets in /data/2010/dec/sf1 and its descendants

Title	Description	Vintage	Dataset Name	Dataset Type	Geography List	Variable List	Group List	SortList	Examples	Developer Documentation	API Base URL
Decennial SF1	Summary File 1 (SF 1) contains detailed tables focusing on age, sex, households, families, and housing units. These tables provide in-depth figures by race and Hispanic origin> some tables are repeated for each of nine race/Latino groups. Counts also are provided for over forty American Indian and Alaska Native tribes and for groups within race categories. The race categories include eighteen Asian groups and twelve Native Hawaiian and Other Pacific Islander groups. Counts of persons of Hispanic origin by country of origin (twenty-eight groups) are also shown. Summary File 1 presents data for the United States, the 50 states, and the District of Columbia in a hierarchical sequence down to the block level for many tabulations, but only to the census tract level for others. Summaries are included for other geographic areas such as ZIP Code Tabulation Areas (ZCTAs) and Congressional districts. Geographic coverage for Puerto Rico is comparable to the 50 states. Data are presented in a hierarchical sequence down the block level for many tabulations, but only to the census tract level for others. Geographic areas include barrios, barrios-pueblo, subbarrios, places, census tracts, block groups, and blocks. Summaries also are included for other geographic areas such as ZIP Code Tabulation Areas (ZCTAs).	2010	dec› sf1	Aggregate	geographies	variables	groups	sorts	examples	documentation	http://api.census.gov/data/2010/dec/sf1

Step 4. You first want to confirm that you'll be able to pull data from the table in its entirety. When you pull data for an entire table, it's referred to as "making a group call." To confirm that the table needed, H1, Housing Units, is available for group calls, left click on the Groups link and choose 'Open link in new tab.'



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You can see that the table needed, H1, is available for group calls. Now that we've confirmed that, close the tab, as it's no longer necessary to keep it open.

Census API: groups in /data/2010/dec/sf1/groups

Name	Description	Variable List
H1	HOUSING UNITS	selected variables
H10	TOTAL POPULATION IN OCCUPIED HOUSING UNITS	selected variables
H11	TOTAL POPULATION IN OCCUPIED HOUSING UNITS BY TENURE	selected

Step 5. The next thing you'll want to look at is the list of example queries. To find this, return to the information page where you initially selected the Groups link and left click on the Examples link. Choose 'Open link in new tab.'

Census API: Datasets in /data/2010/dec/sf1 and its descendants

Title	Description	Vintage	Dataset Name	Dataset Type	Geography List	Variable List	Group List	SortList	Examples	Developer Documentation	API Base URL
Decennial SF1	Summary File 1 (SF 1) contains detailed tables focusing on age, sex, households, families, and housing units. These tables provide in-depth figures by race and Hispanic origin> some tables are repeated for each of nine race/Latino groups. Counts also are provided for over forty American Indian and Alaska Native tribes and for groups within race categories. The race categories include eighteen Asian groups and twelve Native Hawaiian and Other Pacific Islander groups. Counts of persons of Hispanic origin by country of origin (twenty-eight groups) are also shown. Summary File 1 presents data for the United States, the 50 states, and the District of Columbia in a hierarchical sequence down to the block level for many tabulations, but only to the census tract level for others. Summaries are included for other geographic areas such as ZIP Code Tabulation Areas (ZCTAs) and Congressional districts. Geographic coverage for Puerto Rico is comparable to the 50 states. Data are presented in a hierarchical sequence down the block level for many tabulations, but only to the census tract level for others. Geographic areas include barrios, barrios-pueblo, subbarrios, places, census tracts, block groups, and blocks. Summaries also are included for other geographic areas such as ZIP Code Tabulation Areas (ZCTAs).	2010	dec› sf1	Aggregate	geographies	variables	groups	sorts	examples	documentation	http://api.census.gov/data/2010/dec/sf1

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Open link in incognito window
Save link as...
Copy link address
Inspect

Here you can find example links for all the geographies that are available with the 2010 Summary File 1 in the API. For this example, you are looking at metropolitan and micropolitan statistical area data, so you'll want to focus on the queries found for Geography Level (or Summary Level) 310. Each of the queries provides data for variable P001001 by default. This variable is the total population.

metropolitan statistical area/micropolitan statistical area	310	https://api.census.gov/data/2010/dec/sf1?get=P001001,NAME&for=metropolitan%20statistical%20area/micropolitan%20statistical%20area:*&key=YOUR_KEY_GOES_HERE
		https://api.census.gov/data/2010/dec/sf1?get=P001001,NAME&for=metropolitan%20statistical%20area/micropolitan%20statistical%20area:10420&key=YOUR_KEY_GOES_HERE

The &for **portion of the query dictates the geography. The first query is going to give you data for all the metropolitan and micropolitan statistical areas in the US. You can tell that it is going to give data for all metro and micro areas because it uses the wildcard (represented by an asterisk).**

metropolitan statistical area/micropolitan statistical area	310	https://api.census.gov/data/2010/dec/sf1?get=P001001,NAME&for=metropolitan%20statistical%20area/micropolitan%20statistical%20area:*&key=YOUR_KEY_GOES_HERE
		https://api.census.gov/data/2010/dec/sf1?get=P001001,NAME&for=metropolitan%20statistical%20area/micropolitan%20statistical%20area:10420&key=YOUR_KEY_GOES_HERE

The second one allows you to look at data for a single metropolitan or micropolitan statistical area. The 5-digit number used is the unique identifier for each metro and micro statistical area.

metropolitan statistical area/micropolitan statistical area	310	https://api.census.gov/data/2010/dec/sf1?get=P001001,NAME&for=metropolitan%20statistical%20area/micropolitan%20statistical%20area:*&key=YOUR_KEY_GOES_HERE
		https://api.census.gov/data/2010/dec/sf1?get=P001001,NAME&for=metropolitan%20statistical%20area/micropolitan%20statistical%20area:10420&key=YOUR_KEY_GOES_HERE

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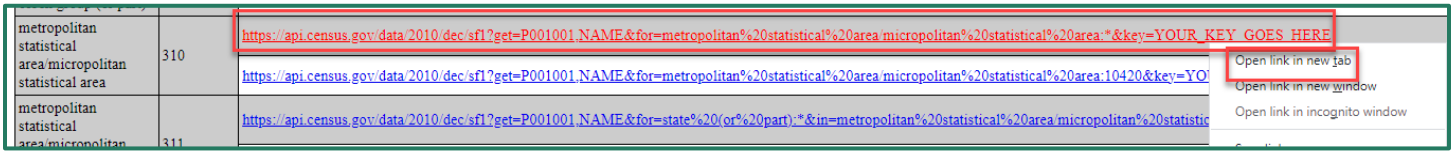
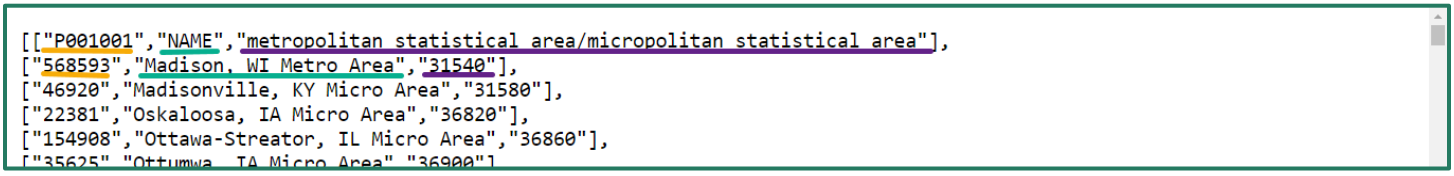
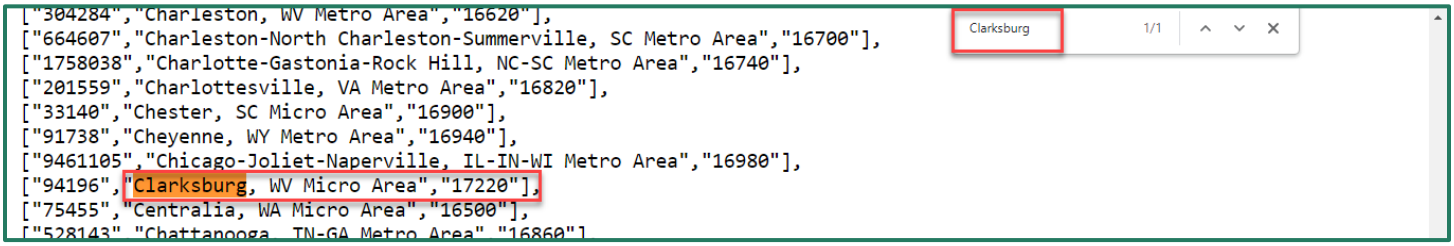
Step 6. Since I want data for the Clarksburg Micro Area, but I don't know what the 5-digit identifier is for the micro area, I can use the first query to find out what the identifiers are for all the metro and micro areas in the US. Left click on https://api.census.gov/data/2010/dec/sf1?get=P001001,NAME&for=metropolitan%20statistical%20area/micropolitan%20statistical%20area:* and choose 'Open link in new tab.'



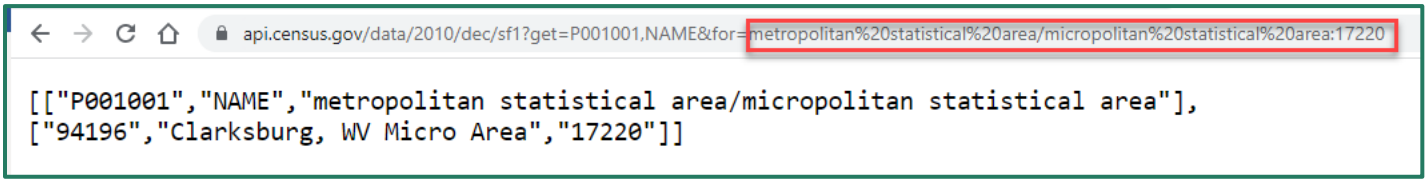
When it opens, you'll see that it is listing out all the metro and micro areas in the US. The first portion is the count of the total population of that metro or micro area. It's labeled as P001001. The second portion, labeled as 'NAME,' is the written name of the metro or micro area. This is followed by the unique 5-digit code for the metro or micro area, labeled as 'metropolitan statistical area/micropolitan statistical area.' In the example highlighted below, '31540' is the 5-digit code for the Madison, Wisconsin Metro Area.



Since you want data for the Clarksburg, West Virginia Micro Area, you need to first determine what the 5-digit code is for it. Click on Ctrl + F and type 'Clarksburg.' When you locate the line for Clarksburg, WV Micro Area, you'll see that the 5-digit code is '17220.'



Step 7. There is no need to switch to the other metro and micro area query just to get data for this micro area. Navigate to the top of the query and replace the asterisk after metropolitan%20statistical%20area/micropolitan%20statistical%20area: **with '17220. Then hit Enter. The query should now be https://api.census.gov/data/2010/dec/sf1?get=P001001,NAME&for=metropolitan%20statistical%20area/micropolitan%20statistical%20area:17220. This isolates the geography so that you only see the Clarksburg, West Virginia Micro Area.**



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Step 8. Now you can add in table H1. Delete the portion of the URL that says P001001,NAME **and type in** group(H1). **Once you do this, the query is** https://api.census.gov/data/2010/dec/sf1?get=group(H1)&for=metropolitan%20statistical%20area/micropolitan%20statistical%20area:17220. **Once you hit Enter, you'll receive data back for the requested table for the Clarksburg Micro Area.**

```
[["GEO_ID","H001001","NAME","H001001ERR","metropolitan statistical area/micropolitan statistical area"],
["310M100US17220","42918","Clarksburg, WV Micro Area",null,"17220"]]
```

Let's review the output. The first portion is the GEO_ID. This is the unique geographic identifier for the given geography.

```
[["GEO_ID","H001001","NAME","H001001ERR","metropolitan statistical area/micropolitan statistical area"],
["310M100US17220","42918","Clarksburg, WV Micro Area",null,"17220"]]
```

The next portion is the count of housing units for variable H001001 of table H1. In this case, the number of housing units in the Clarksburg Micro Area are 42,918.

```
[["GEO_ID","H001001","NAME","H001001ERR","metropolitan statistical area/micropolitan statistical area"],
["310M100US17220","42918","Clarksburg, WV Micro Area",null,"17220"]]
```

Next is NAME, which is the written name of the geography.

```
[["GEO_ID","H001001","NAME","H001001ERR","metropolitan statistical area/micropolitan statistical area"],
["310M100US17220","42918","Clarksburg, WV Micro Area",null,"17220"]]
```

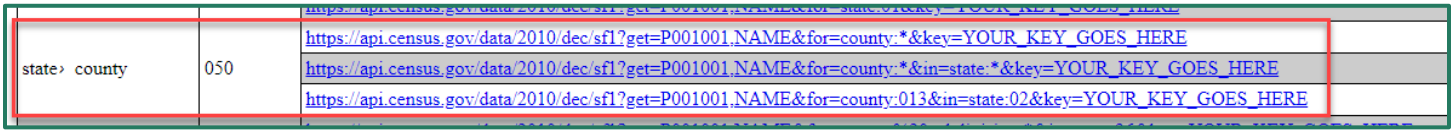
This is followed by the variable H001001ERR, which is the Errata of Total. In this example, it's null.

```
[["GEO_ID","H001001","NAME","H001001ERR","metropolitan statistical area/micropolitan statistical area"],
["310M100US17220","42918","Clarksburg, WV Micro Area",null,"17220"]]
```

Then the last portion is the unique 5-digit code that represents the metro or micro statistical area.

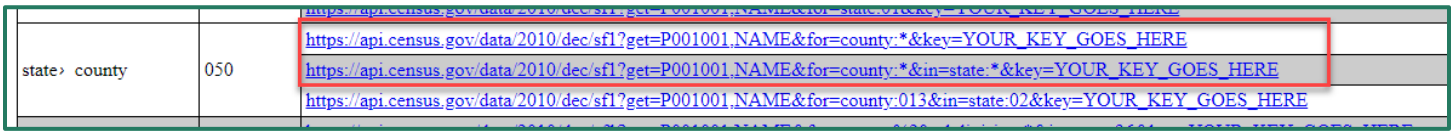
```
[["GEO_ID","H001001","NAME","H001001ERR","metropolitan statistical area/micropolitan statistical area"],
["310M100US17220","42918","Clarksburg, WV Micro Area",null,"17220"]]
```

Step 9. Now that we have the data from table H1 for the Clarksburg Micro Area, we need to find the same data for Doddridge, Harrison, and Taylor counties. To do this, you just need to modify the geography portion of the query. Go back to the page with the example queries. This time we're interested in the queries for county-level data, or Geography/Summary Level 050. There are three different tract queries to choose from.



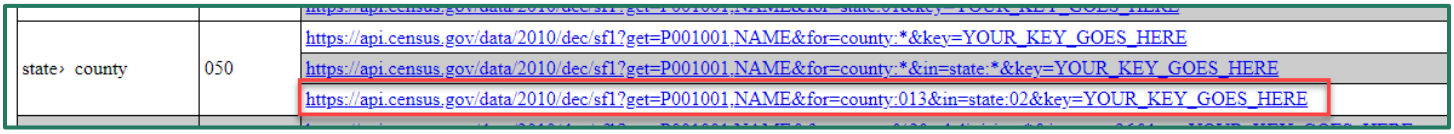
state› county	050	https://api.census.gov/data/2010/dec/sf1?get=P001001,NAME&for=county:*&key=YOUR_KEY_GOES_HERE
		https://api.census.gov/data/2010/dec/sf1?get=P001001,NAME&for=county:*&in=state:*&key=YOUR_KEY_GOES_HERE
		https://api.census.gov/data/2010/dec/sf1?get=P001001,NAME&for=county:013&in=state:02&key=YOUR_KEY_GOES_HERE

The first query is going to give you data for all counties in the US. The second one is also going to give you data for all counties in the US; it will also give you the state that the county is in.



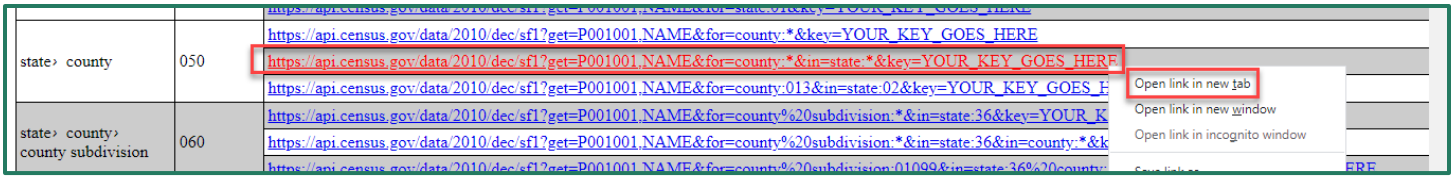
state› county	050	https://api.census.gov/data/2010/dec/sf1?get=P001001,NAME&for=county:*&key=YOUR_KEY_GOES_HERE
		https://api.census.gov/data/2010/dec/sf1?get=P001001,NAME&for=county:*&in=state:*&key=YOUR_KEY_GOES_HERE
		https://api.census.gov/data/2010/dec/sf1?get=P001001,NAME&for=county:013&in=state:02&key=YOUR_KEY_GOES_HERE

And then the last query allows you to get data for a single county within a given state. To use this last query, you'll have to know what the 2-digit Federal Information Processing System, or FIPS, code is for the state, as well as the 3-digit code for the county.



state› county	050	https://api.census.gov/data/2010/dec/sf1?get=P001001,NAME&for=county:*&key=YOUR_KEY_GOES_HERE
		https://api.census.gov/data/2010/dec/sf1?get=P001001,NAME&for=county:*&in=state:*&key=YOUR_KEY_GOES_HERE
		https://api.census.gov/data/2010/dec/sf1?get=P001001,NAME&for=county:013&in=state:02&key=YOUR_KEY_GOES_HERE

It looks like the last query is the best one to use since we can just add in the state and county codes for the ones that we need. The problem is that like the situation before with the micro area, you may not know what the state or county codes are. To figure this out, use the second query. Left click on it and choose 'Open link in new tab.'



Step 10. Along with the count of the total population, this query provides you with a list of all the counties in the US and their respective state. Click on Ctrl + F and enter 'West Virginia' in the search box. We can see from the list that the state FIPS code for West Virginia is '54.' Make note of this and skip through the results until you reach Doddridge County. Make note of the 3-digit code for it: 017. Continue to skip through the other counties and make note of the 3-digit codes for Harrison and Taylor counties (033 and 091, respectively).

Step 11. Now that you have this information, you can modify the geography portion of this query to get data for the counties and then copy that geography portion and paste it into the query you did for the Clarksburg Micro Area. Navigate to the query and replace the asterisk after state: **with** 54 **and hit Enter. This narrows the list down to all the counties in West Virginia.**

Now replace the asterisk after county: **with** 017,033,091 **and hit Enter. Now the list only shows the three counties of interest. Keep in mind that you can add more than one county code to this query because all the counties are in West Virginia. If you were looking at data for a county in another state besides West Virginia, you would not be able to add that county code to the query. At least for this query, you would only be able to add in counties that are actually in West Virginia.**

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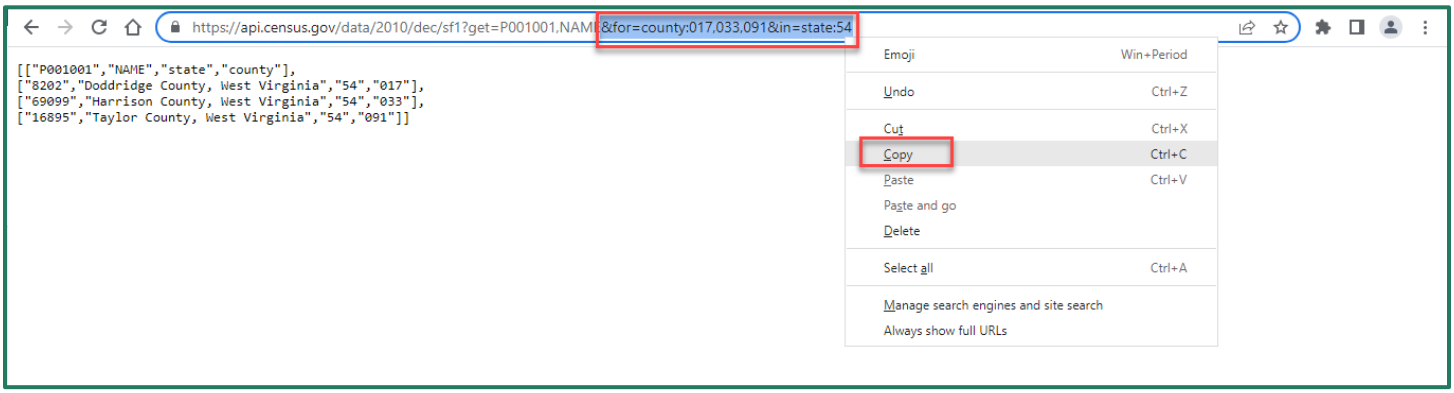
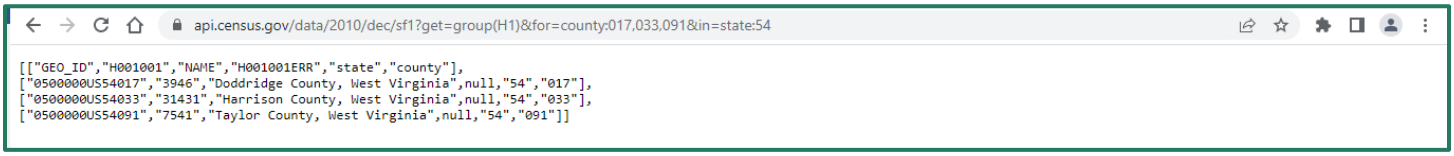
Step 12. Now copy the entire geography portion, starting with &for=**, by right clicking on it and selecting Copy.**



Then go back to the query that we did earlier for the Clarksburg Micro Area and paste the new geography portion over the old portion, which was &for=metropolitan%20statistical%20area/micropolitan%20statistical%20area:17220**. Once that's done, hit Enter. You should now have a line of data each for Doddridge, Harrison, and Taylor counties that gives the data for the number of total housing units.**



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